a second oligonucleotide comprising a second stem and a second loop structure and having a photoluminescent dye at one of the 5' or 3' ends and a quenching agent at the opposite 5' or 3' end, wherein the second loop consists of 14-26 bases and has a Tm of 54-56°C, and wherein the second stem consists of 4-6 base pairs comprising a sequence 5'-CACG-3'.

Remarks

Applicants have canceled claims 1-103 and added claims 104-108. No new matter has been added.

Claim 104 is drawn to a molecular beacon probe. The molecular beacon probe comprises an oligonucleotide comprising a stem and a loop structure. It also has a photoluminescent dye at one of the 5' or 3' ends and a quenching agent at the opposite 5' or 3' end. The loop consists of 14-26 bases and has a T_m of 50-51°C. The stem consists of 4 base pairs having a sequence 5'-CACG-3'. The specification supports new claim 104. The specification describes that molecular beacon probes "comprise an oligonucleotide with a stem-loop structure having a photoluminescent dye at one of the 5' or 3' ends and a quenching agent at the opposite 5' or 3' end." (Page 3, lines 23-25.) The specification also discloses that the loop "has a T_m of 50-51°C. The stem consists of 4 base pairs having a sequence 5'-CACG-3'." (Page 3, lines 26-27.) Furthermore, the specification discloses that loops "ranging from 14 to 26 bases" were tested. (Page 16, line 27.) Thus, the specification supports the molecular beacon probes of new claim 104.

Claim 105 recites that the molecular beacon probe of claim 104 detects a wild-type nucleic acid better than a mutant nucleic acid. Claim 105 is supported by the specification where it discloses the development of "a single probe that would react with WT sequences better than

any mutant sequence within the queried sequence." (Page 16, lines 23-25.)

Claim 106 recites that the molecular beacon probe of claim 104 detects a mutant nucleic acid better than a wild-type nucleic acid. Claim 106 is also supported by the specification. The specification, claim 93, recites a "probe [that] detects a mutant nucleic acid better than a wild-type nucleic acid."

Claim 107 is drawn to a molecular beacon probe. The molecular beacon probe comprises an oligonucleotide comprising a stem and a loop structure. The probe has a photoluminescent dye at one of the 5' or 3' ends and a quenching agent at the opposite 5' or 3' end. The loop consists of 14-26 bases and has a T_m of 54-56°C. The stem consists of 4-6 base pairs comprising a sequence 5'-CACG-3'. The specification supports new claim 107. The specification describes that molecular beacon probes "comprise an oligonucleotide with a stem-loop structure having a photoluminescent dye at one of the 5' or 3' ends and a quenching agent at the opposite 5' or 3' end." (Page 3, lines 23-25.) The specification also discloses that the loop "has a T_m, of 54-56°C" and the stem has "a sequence 5'-CACG-3'." (Page 4, line 2.) The length of the stem and the loop are also described. The specification discloses that "[l]oops ranging from 14 to 26 bases and stems ranging from 4 to 6 bases" were tested in optimization procedures. (Page 16, lines 27-28.) Thus claim 107 is supported by the specification.

Claim 108 is drawn to a pair of molecular beacon probes. The pair of molecular beacon probes comprises a first probe and a second probe. The specification also supports pairs of molecular beacon probes. The specification discloses, "[a]nother embodiment provides the two types of molecular beacon probes, either mixed together or provided in a divided container as a kit." (Page 4, lines 4-5.) The first and second probes of claim 108 are the probes claimed in new

claims 104 and 107. Thus the first and second probes are supported by the specification as indicated above.

Entry of the amendment is respectfully requested.

Respectfully submitted,

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